REMARKS

Reconsideration is respectfully requested in view of Applicant's amendments and remarks herein, the 37 C.F.R. 1.132 Declaration submitted herewith, and the certified translation of Applicant's priority application, also submitted herewith.

At this time, Applicant has amended generic claim 1 to insert the subject matter of claim 8 therein, by which amendment the cross-linking agent (B-1) is defined as containing 3 to 5 benzene rings. This necessitated the cancellation of claims 8 and 9. Entry and consideration of the amendment are respectfully requested.

In paragraph 3 of the Office Action, claims 1, 2 and 4 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable (obvious) over Kai et al in view of Kobayashi et al, Hakey et al and Shirakawa et al. For the reasons set forth herein and in view of the Rule 132 declaration and certified translation of priority document filed concurrently herewith, Applicant respectfully submits that the rejection should be reconsidered and withdrawn, and all claims indicated as being in allowable condition.

In essence, the Examiner submits that from the art as a whole it is obvious to utilize Applicant's combination of cross-linking agents (B-1) and (B-2) in a negative resist composition in the absence of unexpected results.

Concerning the primary reference of Kai et al, the Examiner refers to Example 6 thereof, in which cross-linkers C-1 and C-2 are used. The Examiner submits that the difference between Applicant's cross-linker (B-1) and compound (C-2) of Kai et al lies in Applicant's hydroxymethyl group as compared to Kai et al's hydroxyisopropyl group in its compound (C-2). But there is another, more important distinction between compound (C-2) of the reference and

Applicant's cross-linker (B-1). Applicant's compound (B-1) must be a phenol compound containing 3 to 5 benzene rings and at least two cross-linking groups selected from hydroxymethyl, alkoxymethyl and acyloxymethyl groups. On the other hand, the compound of Kai et al is not a phenol compound but is benzene substituted by 3 hydroxyisopropyl groups. Thus, the primary reference of Kai et al does not teach or suggest the inclusion of a phenol compound as a cross-linker; as a result, even if the hydroxyisopropyl group of compound (C-2) of Kai et al were changed to a hydroxymethyl group, still cross-linker (B-1) of the present claims would not result because the altered compound still would not be a phenol compound containing 3 to 5 benzene rings.

Even though new comparative evidence is not thought to be necessary, since the Examiner has suggested the same, Applicant in order to be fully responsive and place this case in condition for allowance, has carried out a duplicate of Example 3 of the present application, but using compound (C-2) of Kai et al, 1,3,5-tris(alpha-hydroxyisopropyl) benzene, in place of compound MM-3, a phenol compound within the definition of cross-linker (B-1) of claim 1. Both compounds are used in combination with a cross-linker (B-2) of claim 1. The Examiner is requested to review the results set forth in the 1.132 Declaration, which demonstrate the unexpected superiority of the present invention over the teachings of Kai et al. Further, review of Examples 5 and 8 in comparison with Examples 1 – 3, 6 and 9 – 11 of the working examples in the present application (see Table 1 at page 79, MM compound structures on page 74, and the experimental results set forth in Table 2 on page 81), overall show that using a cross-linking agent having one benzene ring provides relatively inferior results in terms of resolution and line edge roughness compared with the use of a cross-linking agent having 3 to 5 benzene rings showing relatively superior results.

The issue remains whether any of the secondary references provide the obvious deficiencies of the primary reference.

First of all, Applicant encloses herewith a certified translation of its priority application for antedating the Shirakawa et al reference. The present claims are supported under the first paragraph of 35 U.S.C. 112 as follows (all references to the JPA are with respect to the translation thereof enclosed herewith): claim 1 by claim 1 of the JPA with p. 38, last paragraph and p. 31, last 3 lines of the JPA; claim 2 by claim 2 of the JPA; claim 4 by pages 8 – 10 of the JPA; claim 5 by the bottom of page 10 of the JPA; claim 6 by p. 17 first full paragraph of the JPA; claim 7 by p. 16, second full paragraph of the JPA; claim 10 by p. 41, last full paragraph of the JPA; claim 11 by the paragraph bridging pages 43 – 44 of the JPA; claim 12 by p. 44, first full paragraph of the JPA; claim 13 by p. 44, second full paragraph of the JPA; claim 14 by the procedure at pages 78 – 79 of the JPA; claim 15 by pages 60 – 61 of the JPA; claims 16 – 18 by the paragraph bridging pages 63 – 64 of the JPA; and claims 19 – 20 by page 11, third full paragraph of the JPA.

The remaining secondary references of Hakey et al and Kobayashi et al do not teach or suggest using a phenol cross-linking agent containing 3 to 5 benzene rings, alone or in a cross-linking combination in a resist composition. Hakey et al, at the portion thereof noted by the Examiner, appears to only be relevant to cross-linker (B-2) of Applicant's claims. Kobayashi et al sets forth many different types of cross-linking agents. It appears that the disclosure of Kobayashi et al closest to the present claims is a recitation of methylol group–containing phenol compounds at column 9, line 17. But the reference does not give any example of such a compound and certainly does not teach or suggest the use of phenol compounds containing 3 to 5 benzene rings. As a result, even if the skilled artisan did combine Kobayahsi et al with Kai et al,

still the present invention would not result. Further, there is no suggestion or teaching in Kobayashi et al as to the specific cross-linkers thereof to consider for use in combination, such as in combination with compound (C-1) of Kai et al.

Reconsideration and withdrawal of the prior art rejection are respectfully requested in view of the comments herein and submissions herewith. The prior art does not teach or suggest the use of the two types of cross-linking agents in a negative resist composition as set forth in present claim 1.

In view of the above, reconsideration and allowance are now believed to be in order, and are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the listed telephone number.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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